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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,148	12/01/2003	Kevin Allan Dooley	2993-526US CMB/as	1605

32292 7590 01/18/2007  
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EXAMINER

MCCLLOUD, RENATA D

ART UNIT PAPER NUMBER

2837

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/724,148

Applicant(s)

DOOLEY, KEVIN ALLAN

Examiner

Renata McCloud

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 20-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/1/03, 11/1/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of the species in the reply filed on 09/25/2006 is acknowledged. The traversal is on the ground(s) that the species are only alternative embodiments of the same invention. This is not found persuasive because alternative embodiments are different inventions.

The requirement is still deemed proper and is therefore made FINAL.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "second stator", "second rotor" (claim 15), "the first and second rotors are the same rotor" (claim 16), "the first and second stators are portions of the same stator" (claim 17)," the first and second stators are distinct sectors of the same stator body' (claim 18) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. It appears that claims 15-19 are not encompassed by the embodiment of figure 1, but are instead one of applicant's different embodiments as described in Figs 4-8.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views

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of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5-8, 16-19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "generally" in claim 5 is a relative term which renders the claim indefinite. The term "generally" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 5 recites the limitation "said sectors". There is insufficient antecedent basis for this limitation in the claim

Claim 5: the third paragraph of the claim in narrative and has grammatical errors.

Claim 5 recites the limitation "the other winding set". There is insufficient antecedent basis for this limitation in the claim

Claim 6: it is unclear how the other winding set is not connected to the motor drive when the drawings show winding set 14 connected to the drive (26) through (24).

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Regarding claim 7, the phrase "such that" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 7 recites the limitation "the second". There is insufficient antecedent basis for this limitation in the claim.

Claim 7: the limitation "therethrough" is indefinite. It is unclear what therethrough is referring to.

Claim 16 recites the limitation "the same rotor". There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "the same stator body". There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the same stator body". There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "said two magnetic circuits". There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "said two multiphase winding sets". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-5,9-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (US 5821660).

**Claims 1, 5, 9,15:** a stator (14) having at least a first and second multiphase winding the first and second windings being isolated from one another and non-interlaces with one another (abstract); a rotor (18) having permanent magnets (18); a drive circuit (20) including a power source (fig 4:82) and a commutation circuit (fig 4:90), the drive circuit connected to at least to first winding (15A) to drive the rotor (18); a rotor position detector ( fig. 4:96, resolver) connected to the second winding (15B), the rotor position sensor (96) adapted to in use determine rotor position based on power induced in the second winding when the rotor passes the second winding, the rotor position sensor providing feedback information to the drive circuit regarding the rotor position (col. 5:63-6:23).

**Claim 2:** at least three phases (fig. 2).

**Claim 3:** the first (15A) and second windings (15B) are spaced apart.

**Claim 4:** the first (15A) and second windings (15B) occupy non-overlapping sectors of the stator.

**Claim 10:** the first and second windings are disposed in distinct sectors of the stator (fig. 2)

**Claim 11:** the first and second windings are non-overlapping (fig. 2)

**Claim 12:** the first and second winding sets are arranged serially (fig. 2)

**Claim 13:** each set is a 3-phase winding set (fig. 2)

**Claim 14:** a commutation apparatus (90) connected to the first winding set and a rotor position sensing apparatus (96) connected to the second winding set, the sensing apparatus (96) connected to the commutation apparatus (90)

**Claim 16:** the rotor comprises first and second portions (col. 3:22-25).

**Claims 17,18:** the stator comprises first and second portions (34).

7. Claims 1, 5, 9, 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller (US 4322666).

**Claim 1, 5, 9,15:** a first rotor (Fig. 2:38) ,a first stator (19), at least one multiphase winding set associated with the first stator (49,50); a second rotor (39), a second stator (20) , at least one multiphase winding set (47,48) associated with the second stator having at least a first and second multiphase winding the first and second windings being isolated form one another and non-interlaces with one another; a commutation circuit (fig. 2: 54-57), the drive circuit connected to at least to first winding to drive the rotor; a rotor position detector (53) connected to the second winding, the rotor position sensor (53) adapted to in use determine rotor position based on power induced in the second winding when the rotor passes the second winding, the rotor position sensor providing feedback information to the drive circuit regarding the rotor position (col. 12:41-65).

**Claim 16:** the rotor comprises first and second portions (38,39).

**Claims 17,18:** the stator comprises first and second portions (49,50).

**Claim 19:** only two winding sets wherein the first and second stators occupy different halves of the stator (fig. 2).

8. Claims 1,3-5,7,9,15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Vu (US 5838122).

**Claim 1, 9,15:** a stator having at least a first and second multiphase winding (38, 38') the first and second windings being isolated form one another and non-interlaces with one another (fig. 2:38, 38'); a rotor having two portions (fig. 1:10; col. 3:22-25) having a permanent

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magnet (24); a drive circuit (fig. 2) including a power source (fig 2:84; col. 4:20-29) and a commutation circuit (fig 2:commutation logic), the drive circuit connected to at least to first winding to drive the rotor (10); a rotor position detector ( 72) connected to the second winding (38 or 38'), the rotor position sensor (72) adapted to in use determine rotor position based on power induced in the second winding when the rotor passes the second winding, the rotor position sensor providing feedback information to the drive circuit regarding the rotor position(col. 4:20-53)..

**Claim 3:** the first (38) and second windings (38') are spaced apart.

**Claim 4:** the first (38) and second windings (38') occupy non-overlapping sectors of the stator.

**Claim 5:** a rotor (10) having at least one permanent magnet (24); a stator having at least a first and second sector (34) relative to the rotor, the first and second sectors being distinct from one another, the stator having at least two multiphase winding sets (38,38') wherein the at least two winding sets (38,38') are confined to a different one the sectors (col. 3:30-55), a motor drive(fig. 2) connected to a power source (fig 2:84; col. 4:20-29) and one of the winding sets; a rotor position detector (72) connected to the other winding set (50/48) to acquire signals from the other winding set. (col. 4:29-52)

**Claim 7:** a system comprising a rotor a stator having first and second winding sets isolated from one another, the first and second sets positioned such that the rotor induces electricity (sensor motor) ; a first control system (power amp) providing power to the first winding set to rotate the rotor; a second control system (72) to receive power induced in the second winding and provide rotor position info to the first control system (power amp)

**Claim 16:** the rotor comprises first and second portions (col. 3:22-25).

**Claims 17,18:** the stator comprises first and second portions (34).



9. Claim 7 rejected under 35 U.S.C. 102(b) as being anticipated by Pengov (US 6060809).

**Claim 7:** a system comprising a rotor a stator having first and second winding sets isolated from one another, the first and second sets positioned such that the rotor induces electricity (Fig. 14); a first control system (fig. 14: 45) providing power to the first winding set to rotate the rotor; a second control system (38) to receive power induced in the second winding and provide rotor position info to the first control system (38).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of Bartholow et al (US 5221880)

**Claim 6:** Anderson teaches the limitations of claim 5. Referring to claim 6, Anderson does not teach the other winding set is not connected to the controller. Bartholow et al teach first and second winding sets(58/59, 62/63) wherein a second winding (62/63) set is not connected to the controller (100). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Anderson to connect the windings as taught by Bartholow et al in order to commutate the motor.

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12. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Vu in view of Bartholow et al (US 5221880)

**Claim 6:** Vu teaches the limitations of claim 5. Referring to claim 6, Vu does not teach the other winding set is not connected to the controller. Bartholow et al teach first and second winding sets(58/59, 62/63) wherein a second winding (62/63) set is not connected to the controller (100). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Vu to connect the windings as taught by Bartholow et al in order to commutate the motor.

13. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Muller in view of Bartholow et al (US 5221880)

**Claim 6:** Muller teaches the limitations of claim 5. Referring to claim 6, Muller does not teach the other winding set is not connected to the controller. Bartholow et al teach first and second winding sets(58/59, 62/63) wherein a second winding (62/63) set is not connected to the controller (100). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Muller to connect the windings as taught by Bartholow et al in order to commutate the motor.

14. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Pengov (US 6060809)

**Claim 8:** Pengov teaches the limitations of claim 7. Referring to claim 8 they teach a third control system (46) to provide power to the second winding. They do not teach a fourth control system to receive power induced in the first winding and provide rotor position info. It

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would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Pengov to have two separate control systems/a fourth control system since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art (see MPEP 2144.04). The advantage of this would be improved commutation of the motor windings.

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Renata McCloud  
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